

Patent Claims

1. A steering system having at least one wheel (38) which rolls on an underlying surface (U) in a direction parallel to the underlying surface and which can be steered about a wheel steering axis (34) which is substantially orthogonal with respect to the underlying surface (U), the rolling direction being determined by a wheel steering angle which describes the rotational position of the at least one wheel (38) about the wheel steering axis (34), having a steering force coupling-in part (13) for coupling a steering force into the steering system and having a steering force transmission device (28) for transmitting the steering force to the at least one wheel (38), in order to bring about a change in the wheel steering angle of the at least one wheel (38), the steering system furthermore comprising a steering angle limiting device (40, 42a, 42b, 50) which can be switched between an active state and an inactive state, limits the wheel steering angle at least to a wheel steering angle range in the active state and does not limit the wheel steering angle of the at least one wheel (38) in the inactive state, characterized in that the steering angle limiting device (40, 42a, 42b, 50) comprises a brake (40) which is provided in such a way that, in the active state of the steering angle limiting device (40, 42a, 42b, 50), it generates a brake force which limits a rotation of the at least one wheel (38) about the wheel steering axis (34) to the predefined wheel steering angle range and it does not generate a

brake force of this type in the inactive state of the steering angle limiting device (40, 42a, 42b, 50).

- 5 2. The steering system as claimed in claim 1, characterized in that the brake (40) fixes the at least one wheel (38) to the wheel steering angle which is present at the instant of the switchover from the inactive state to the active state.
- 10 3. The steering system as claimed in claim 1 or 2, characterized in that the steering force transmission device (28) comprises a steering shaft (28) which is optionally of multi-part
15 design, and a movement part (60) of the brake which can be braked is connected to the steering shaft (28) in order to transmit torque.
- 20 4. The steering system as claimed in one of the preceding claims, characterized in that it furthermore comprises a step-down gear mechanism (16) which is connected on the input side to the steering force coupling-in part (13) and on the output side to the at least one wheel (38), the
25 brake (40) being arranged on the input side of the step-down gear mechanism (26).
- 30 5. The steering system as claimed in one of claims 1 to 3, characterized in that it furthermore comprises a step-up gear mechanism which is connected on the input side to the steering force coupling-in part and on the output side to the at least one wheel, the brake being arranged on the output side of the step-up gear mechanism.

6. The steering system as claimed in one of the preceding claims, characterized in that the brake (40) is an electromagnetic safety brake (40) which generates a braking effect in a state in which no current is applied and does not generate a braking effect in a state in which current is applied.
7. The steering system as claimed in one of the preceding claims, characterized in that it furthermore comprises a steering motor (12), preferably in the form of an electric motor (12), which is connected to the steering force coupling-in part (13) in order to transmit torque.
8. The steering system as claimed in claims 6 and 7, characterized in that the steering motor (12) is an electric motor (12) and the steering angle limiting device (40, 42a, 42b, 50) switches into the active state if there is a disruption to the current supply (42) of the steering motor (12).
9. The steering system as claimed in claim 8, relating back to claim 6, characterized in that the electromagnetic safety brake (40) and the electric steering motor (12) are connected to a common energy supply (42a, 42b).
10. The steering system as claimed in one of the preceding claims, relating back to claim 7, characterized in that a movement part (60) of the brake (40) which can be braked is connected to the motor shaft (14) of the steering motor (12) in order to transmit torque.

11. An industrial truck having at least one steerable wheel and a steering system which is connected to this wheel and is as claimed in at least one of the preceding claims.

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12. The industrial truck as claimed in claim 11, characterized in that it is an industrial truck with automatic steering.

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13. The industrial truck as claimed in claim 12, characterized in that it is an industrial truck with automatic steering and follows a course of a conductor loop which is arranged on or under the underlying surface.

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